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REPLACEMENT DRAWING

FIGURE 1

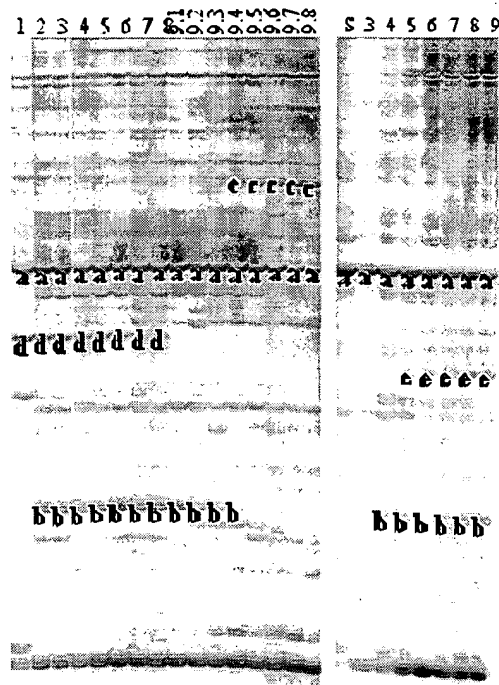


Figure 1. Differential display of loblolly pine zygotic and somatic embryos.

FIGURE 2

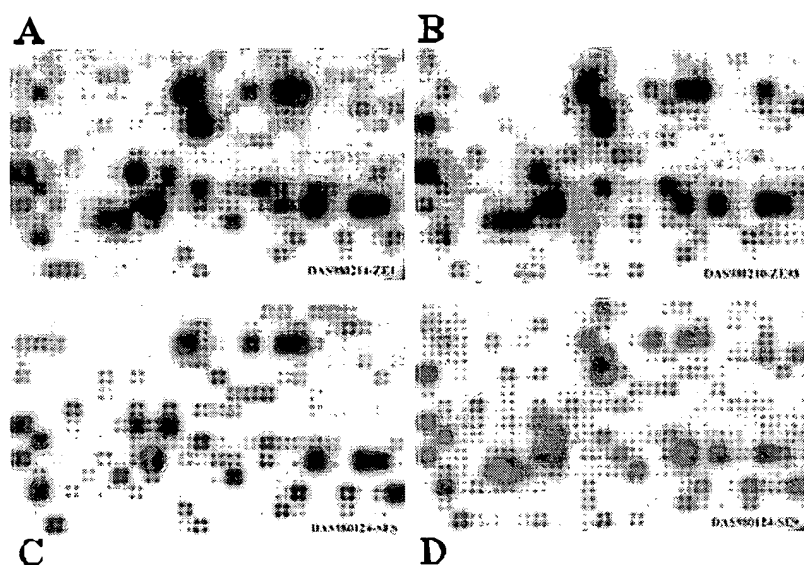


Figure 2. Detection of gene expression by high-density array Southern hybridization.

FIGURE 3

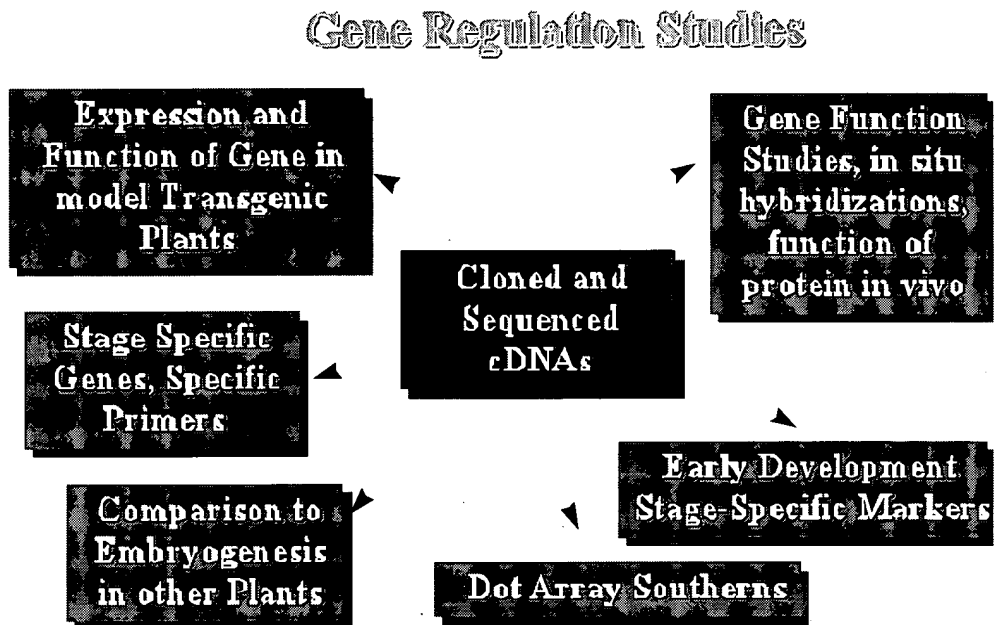


Figure 3. Gene regulation studies arising from the cDNA cloning of genes expressed in embryos.

FIGURE 4

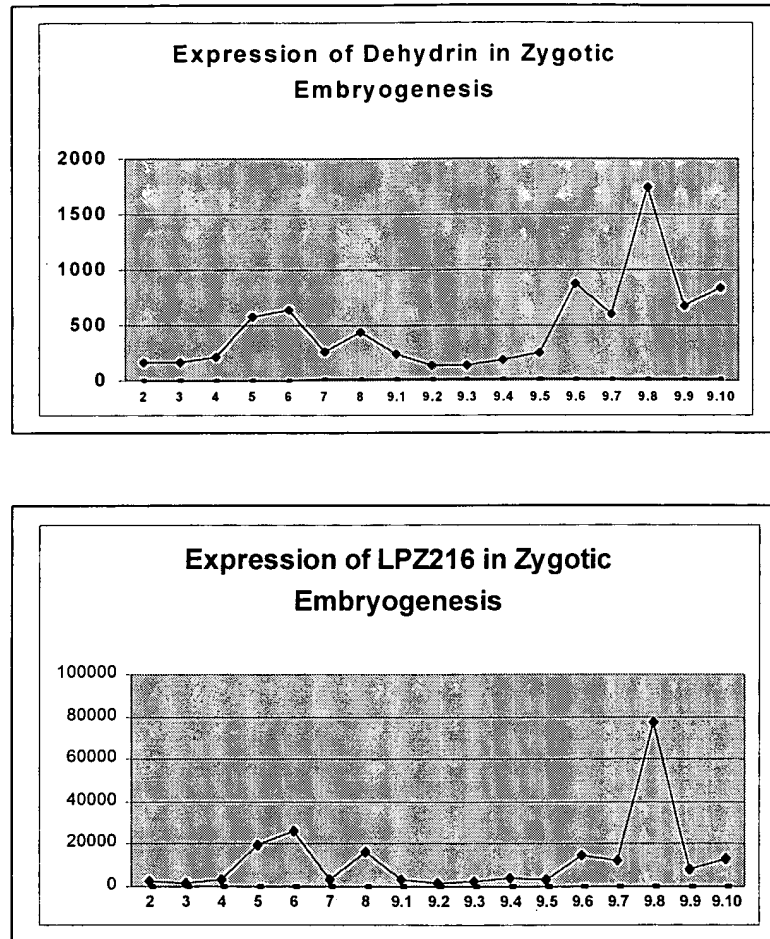


Figure 4. Graphical representation of hybridization of 'dehydrin' and LPZ-216 cDNA probes to total loblolly pine RNA.

FIGURE 5

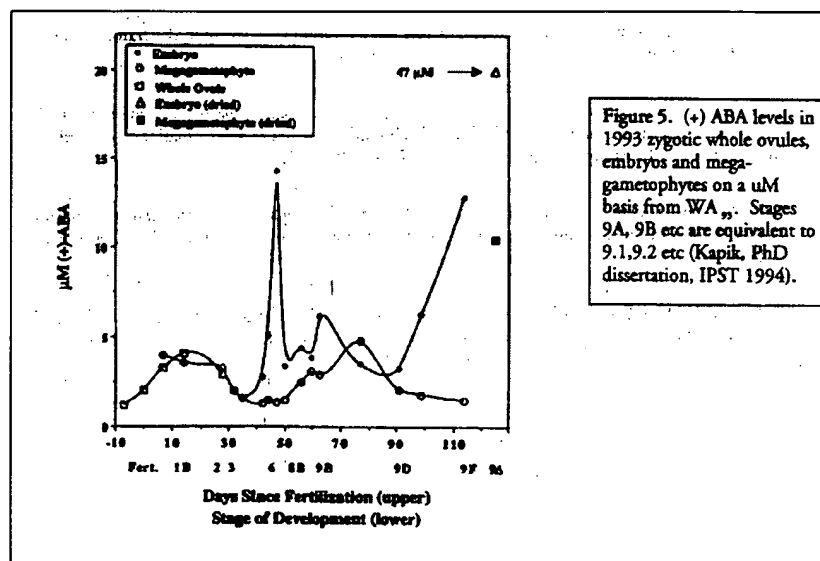


Figure 5. Determination of ABA concentration of loblolly pine embryos as described more fully by Kapik et al., *Tree Physiology* 15:485-490 (1995)

FIGURE 6

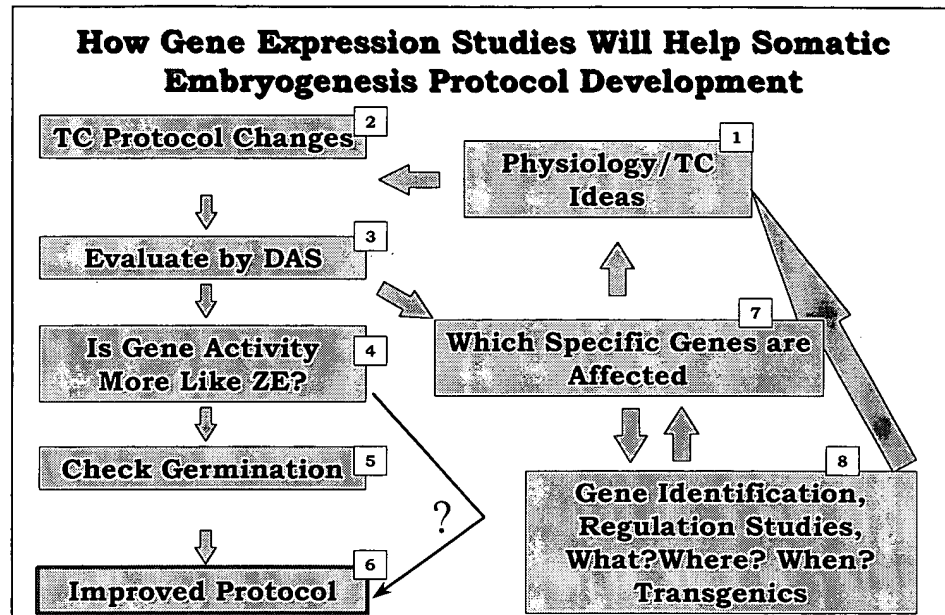


Figure 6. Scheme showing use of gene studies to improve somatic embryogenesis.

FIGURE 7

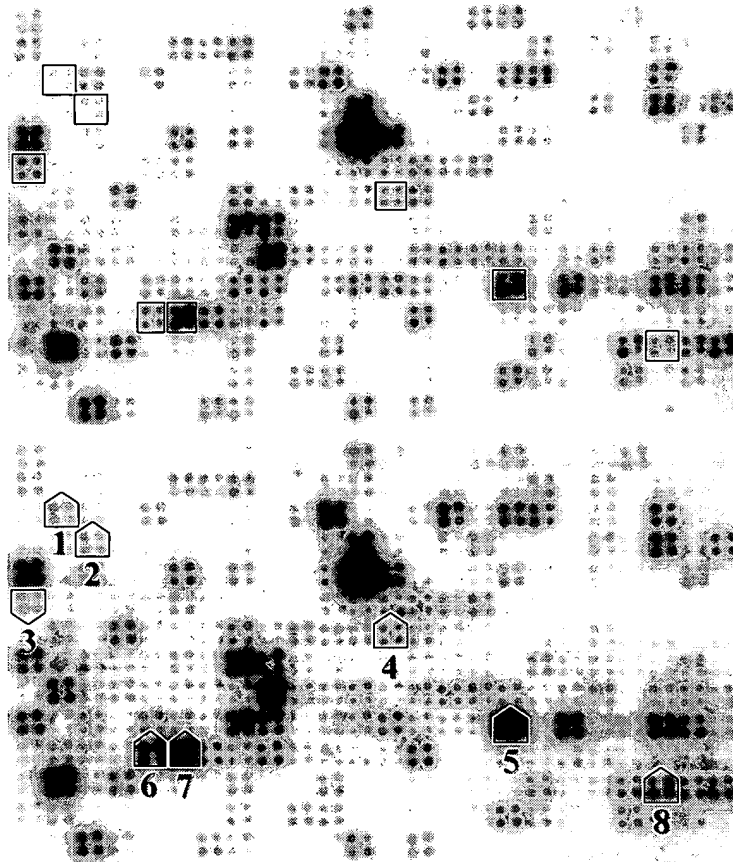


Figure 7. Detection of gene expression by high density array Southern hybridization.

FIGURE 8

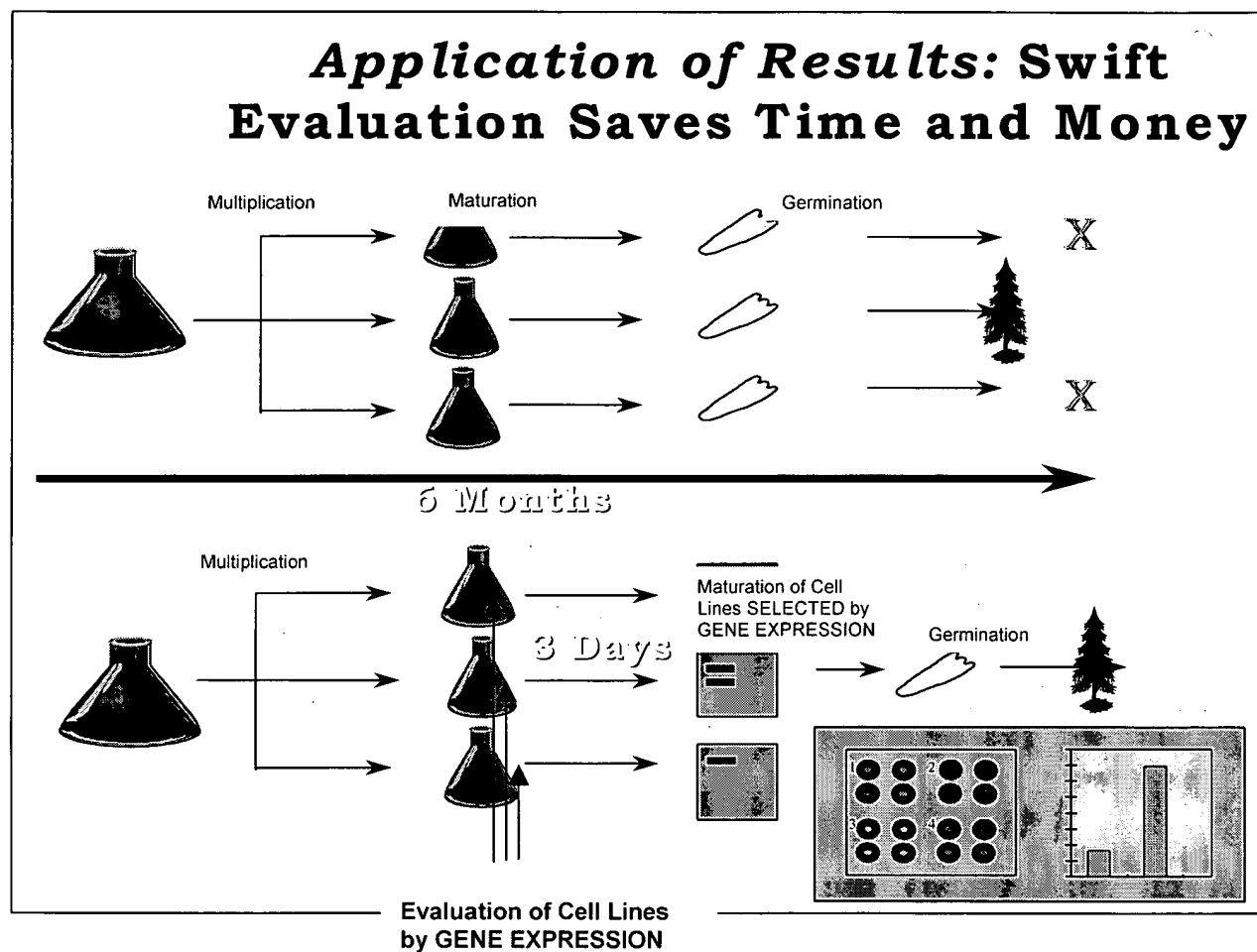
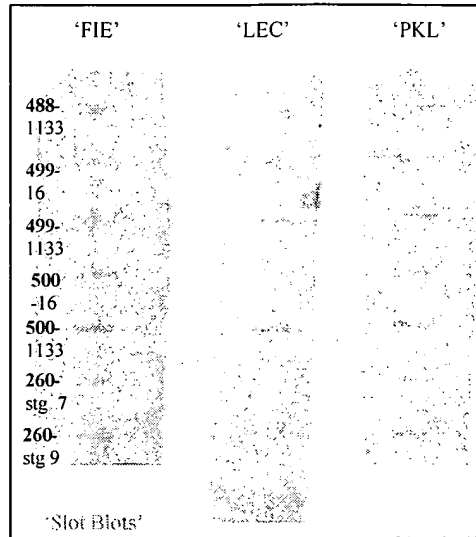


Figure 8. Application of results.

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FIGURE 9

A.



B.

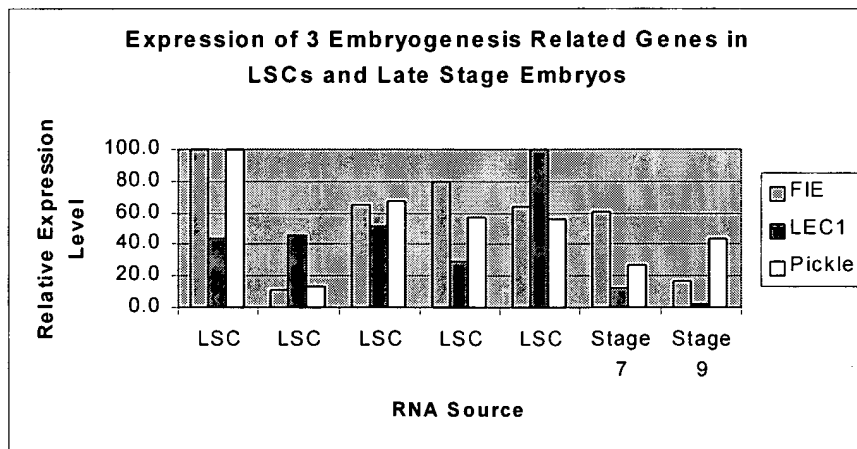


Figure 9A. RNA slot blot probed with pine cDNA clones with similarity to the 'fie' 'lec' or 'pkl' genes from Arabidopsis thaliana. Figure 9B. Quantification of the signals as shown in 9A.

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FIGURE 10

GGGCACAAAGCTCCGCAGCCTGAGCGAGCGTCATTAGCTTGTCAGTCGGA
ACCATTACCCCTTTCCTCTTCGCTGGCTAGCGAATGATAGGGAATGCTAGCC
AGCGAACAAGATTAGAGCACAGAAAGTATAgccAGCGAATCAACAGCATAACAACTTA
GAGATTTCTTGCATTCCCCAGACGGTATCAAGTCATAGTGGAGAATAATCAT
AATAAGATTTGTGAAAATGTTTGTGTAGATTAATGTGTAAAATTCAATCCAT_{ca}
ACCATGAAGTGAAGTGCATTcCGTTTTTAAATGTTTATTGTATTTGAATGAATAAACAGT
TTACACGCGAAAATCCCTACTTTATGTGCGTACAACTATGATTTTTTTTGCAG
TATATAAAAGTTTCCACTATCGTAATTATTTTCCAGATCCGTCTTCTTAACAAC
CCGATTTCCTAGCATCCATCTGCGTGGAATAAATCTATTGAATTATTAACCCT
TGTGATTGGCTAAAAAAAAA

**Figure 10. Sequence of LP2-3 differential display fragment,
507 nucleotides, clone LPS-097.**

FIGURE 11

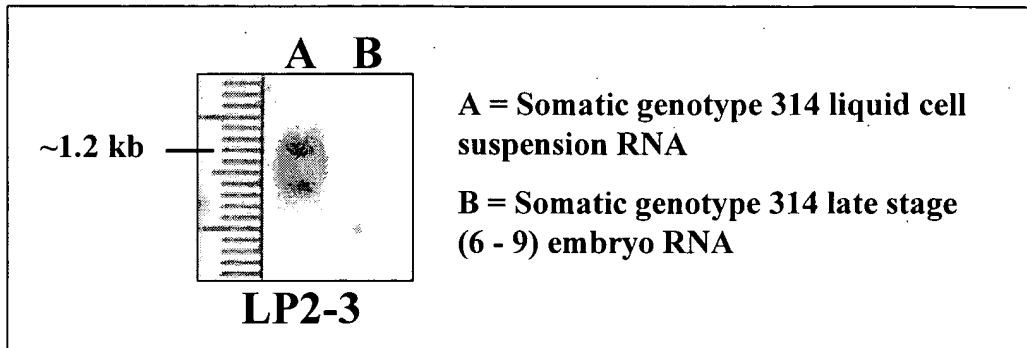
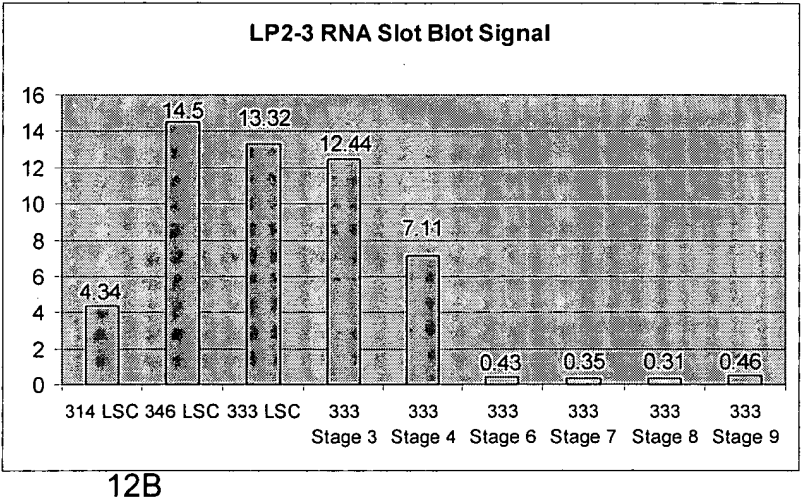
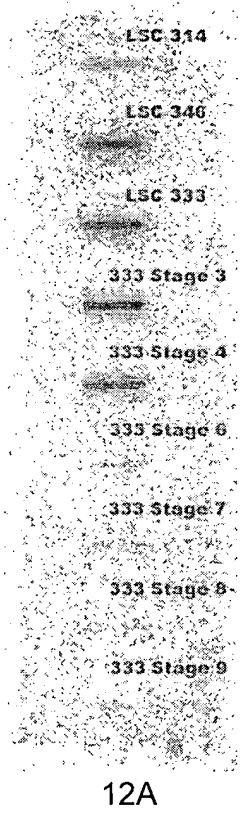


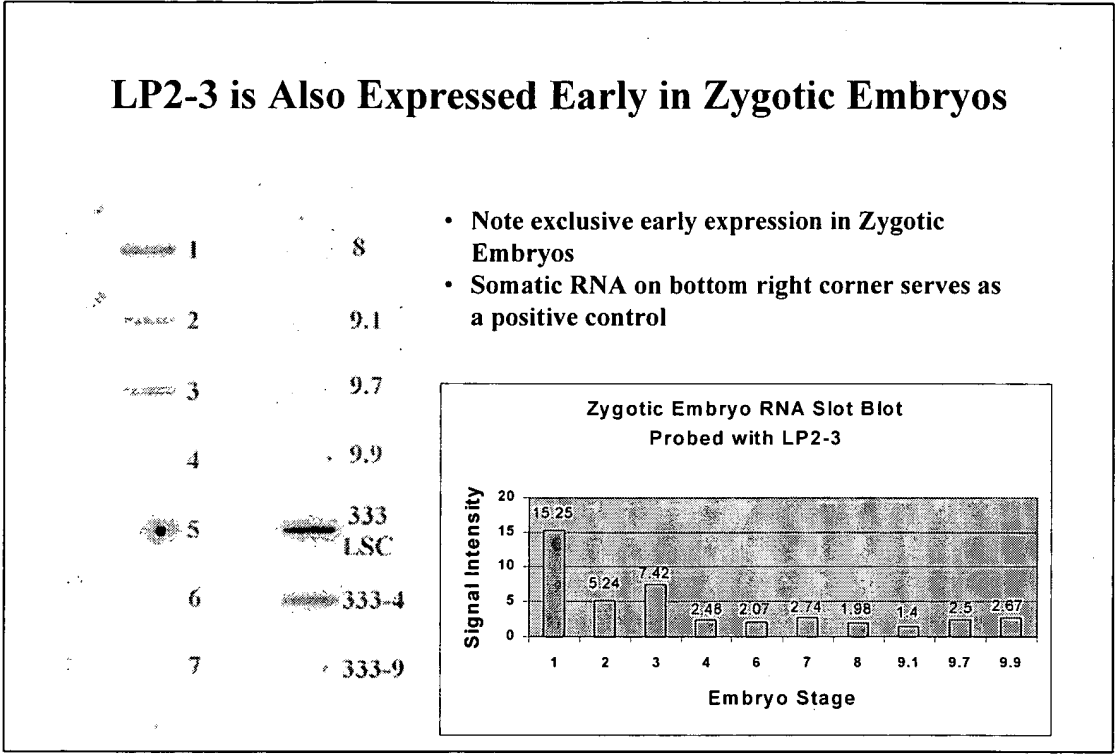
Figure 11. Northern blot from loblolly pine.

FIGURE 12



Figures 12A & 12B. Slot blot and quantification of a total RNA probed with an LP2-3-specific probe.

FIGURE 13

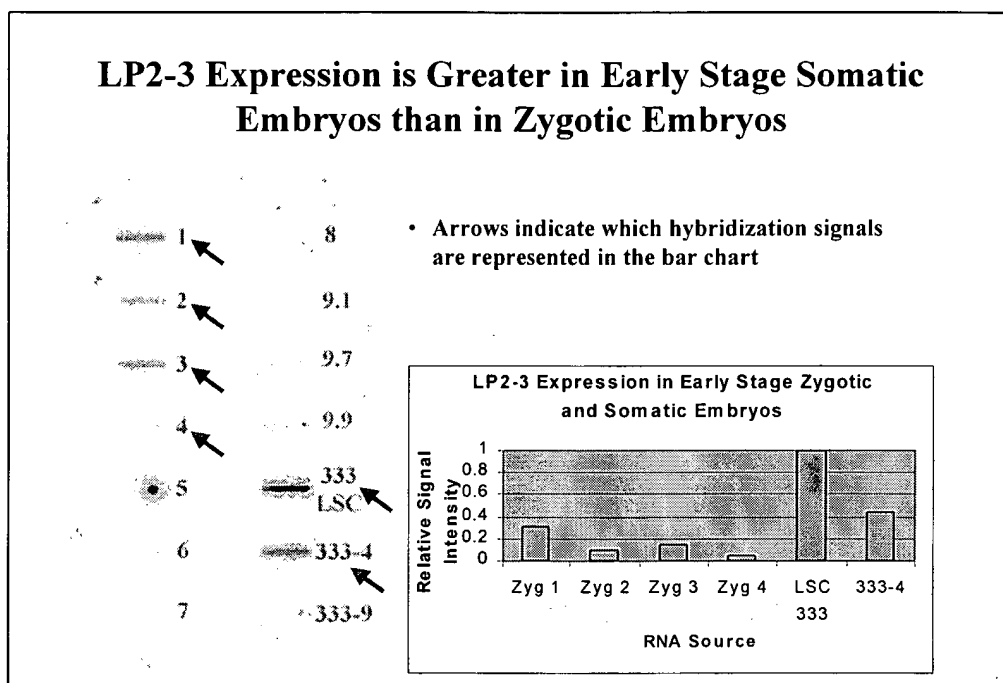


13A

13B

Figures 13A & 13B. Slot blot and quantification of a total RNA probed with an LP2-3-specific probe.

FIGURE 14



14A

14B

Figures 14A & 14B. Slot blot from Fig. 13A and quantified of early stage zygotic embryos compared to early stage somatic embryos.

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